

Application. No. 10/612,262
Amendment dated October 27, 2004
Reply to Office Action of August 17, 2004

REMARKS/ARGUMENTS

Reconsideration of the above-identified application is respectfully requested in view of the foregoing amendments and the following remarks. Claims 7, 12 and 19 have been cancelled. Claims 1 - 3, 6, 8 - 9 and 15 have been amended. Claims 21 - 26 have been added. Claims 1 - 6, 8 - 11, 13 - 18 and 20 - 26 remain in the case.

The invention is a cost-efficient clothes dryer that is connected to the heating system of a house and operates as a peripheral heating zone. The dryer takes energy from a house heating system and radiates it into a drying chamber, thus reducing cost, increasing safety and eliminating the need for gas or electricity. An alternate embodiment uses a consolidated heating system associated with the dryer for providing heat to both the dryer and the house.

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The added claims 21 - 26 are supported by the detailed description in the specification of the application, page 9, lines 3 through 12.

Claims 1 - 11 and 13 - 18 and 20 were rejected under 35 U.S.C. §102(b) as being anticipated by NARANG (U.S. Patent Number 4,891,892). NARANG describes a washer and dryer system that saves energy by using the dryer exhaust and drain water from the washer to preheat water in a storage tank prior to that water being supplied to a hot water heater. Furthermore, NARANG uses hot air from environmental sources such as an attic or the outside of the building in which the dryer is located. This already warm air is then heated by a "heater means". In column 2, line 36, NARANG describes this heater means as an "air heater, whether gas or electric", an integral part of the disclosed dryer assembly. In column 4, line 34, and in Figure 1 NARANG identifies element 76 as the dryer heating assembly, not a home heating apparatus. Finally, in column 4, line 35 - 39, NARANG identifies element 80 as an "elongate mixing tube of conventional type", not a heat exchanger, wherein "The gas burner is located at the inlet of

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the mixing tube through which dilution air is drawn upon operation of the blower 68 for mixing with the hot combustion products generated by the burner." This is specifically different from Applicants' invention, whose primary embodiment makes use of heated fluid from a home heating source as a means of heating the drying chamber, page 7, line 21 through page 8, line 6 of the application's specification. By taking energy from a source that also provides heat for the home, Applicants' invention does not require auxiliary electricity or gas, thus reducing cost and increasing safety. Safety is particularly enhanced by the use of a "radiator", page 13, lines 14 - 17, and claim 1 (currently amended), for transfer of thermal energy from fluid supplied by the home heating apparatus to the dryer intake air, unlike the use of a direct "air heater" as in NARANG. For example, a wood-burning furnace heating hot water for a base-board home heating system could be used in Applicants' invention as the sole provider of heated into the drying chamber. This is impossible under NARANG, where heated fluid is not used, and only gas or electric heating of air intake into the dryer is described.

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The means by which heat fluid is conveyed from the home heating device into the drying chamber makes Applicants' invention unique over NARANG. There is no form of radiation device in NARANG's invention. Element 78 in NARANG is identified in column 4, line 52 as a "gas burner", not a radiator. Instead, hot air from environmental sources such as an attic or the outside of the building in which the dryer is located is used in NARANG, to provide preheated air, to then be heated by a "heater means", column 2, lines 54 through 57. In Applicants' invention, radiation of thermal energy from heated fluid obtained from the home heating system is a central element of the Applicants' invention as disclosed and claimed, page 7, line 21 through page 8, line 6, and claim 1 as currently amended.

Claims 1, 9 and 15 have been amended to specifically recite the application of this home heating source and this radiation device. As amended, claims 1, 9 and 15 are now believed to clearly define this invention over NARANG, thereby overcoming the Examiner's rejection under 35 U.S.C. §102(b).

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Claims 7, 12 and 19 have been encompassed by claims 1, 9 and 15, and are therefore cancelled.

Claims 2 - 8, 10 - 14 and 16 - 20, depending from claims 1, 9 and 15, respectively, are now also believed allowable. Since it is believed that NARANG does not anticipate the invention, and the rejection of claims 1, 9 and 15 of the present invention has been overcome, Applicants respectfully traverse the rejection of claims 1-6, 8-11, 13-18 and 20 under 35 U.S.C. §102(b) as being anticipated by NARANG.

Claims 3, 10, and 16 have been rejected under U.S.C. §102(b) as being anticipated by NARANG, as they are included in the listing above. These specific claims are to the use of a moisture sensing device to control the continued operation of the dryer. Applicants' sensor and NARANG's device are actually quite different. NARANG describes sensors that sense only the temperature inside the dryer drum. NARANG describes a regulator that is "employed to proportionally modulate the heat input rate of the air heater, whether gas or electric, in response to sensed temperature conditions inside the drum or

drying chamber" column 2, lines 35 - 38. In Applicants' invention as disclosed and claimed, the sensor reacts to the humidity of the drying chamber. Page 3, lines 12 - 13 of Applicants' specification states "The drying chamber comprises a sensor that senses the moisture level" and page 12, lines 13 - 16 refer to element 13, "sensor/timer." In contrast, NARANG's other sensor, element 154, is described as a device for sensing the accumulation of lint, clogging the air flow through the dryer filter, column 6, line 63 through column 7, line 22, and does not sense when the clothes in the dryer have reached a dry condition. Applicants respectfully traverse the rejection of claims 3, 5, 10 and 16 under 35 U.S.C. §102(b) as being anticipated by NARANG.

Claims 12 and 19 were also rejected under 35 U.S.C. §103(a) as being unpatentable over NARANG in view of FARRANT (U.S. Patent Number 5,946,814). FARRANT's apparatus uses radiation on a small scale to dry gloves, mittens and shoes and other accessories without damaging them. FARRANT states that conventional tumble driers are not well suited to dry accessories (column 1, lines 8 - 14). This statement

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specifically teaches away from Applicants' invention of a radiatively heated tumble dryer. In re Hedges, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986) "The totality of the prior art disclosure leads substantially away from the claimed invention."

The source of energy required by Applicants' invention also deviates from both NARANG and FARRANT. NARANG describes the apparatus for heating air simply as "heater means for heating air prior to flow through said drying chamber." FARRANT does not mention any source from which the radiators would draw energy. Applicants' energy source, is structurally distinct from NARANG and FARRANT, using fluid from a home heating system rather than a completely different source as in NARANG and FARRANT, and has the potential to reduce cost. Applicants' energy source thus does not require the use of gas or electricity. The application of this source differentiates the invention from both NARANG and FARRANT and is a major aspect of the novelty of the invention. There is no motivation in NARANG to modify his patent with the teachings of FARRANT, since FARRANT states that conventional tumble

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driers are not well suited to dry accessories. Moreover, the addition of FARRANT using radiative heating as an adjunct to the dryer accessories in NARANG in no way anticipates, suggests or renders obvious Applicants' invention any more than does NARANG alone.

Since it is believed that the objection to claims 12 and 19 of the present invention have been overcome, Applicants respectfully traverse the rejection of claims 12 and 19 under 35 U.S.C. §103(a) as being anticipated by NARANG in view of FARRANT.

The information requested regarding a foreign prior art search is not readily available to Applicants. (See 37 C.F.R. §1.105.) The foreign prior art cited by the Examiner, consisting of NAU (DE 34 159 81), KUBOTA (JP 1-303199), COLOMBO (EP 0 456 173) and MAKAMOTO et al. (JP 2004-89415), is the only foreign prior art known to Applicants and appears to be no closer to Applicants' invention than the applied U.S. references.

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In view of the foregoing amendments and remarks,
Applicants respectfully request that claims 1-6, 8-11, 13-18,
and 20 - 26 be allowed and the application be passed to issue.

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